

Minutes of the 3rd TD/BD Coordination Meeting

20 August 2003

Present: Bob Kephart, Victor Yarba, Mike Lamm, John Carson, Jim Kerby (scribe), Paul Czarapata, Hank Glass, Dave Harding, Dave McGinnis, Roger Dixon, Giorgio Apollinari, Rich Stanek, Gregg Kobliska

Agenda:

Date: August 20, 2003

Day: Wednesday

Time: 10:00 am - 11:00 am

Location: Club 157 (trailer complex behind the Industrial Center Building)

Proposed agenda for the scheduled TD/BD meeting this week

Purpose: Review work on the TD work list in order to

- 1) Ensure that management of both divisions is aware of all significant work requests
- 2) Agree on priorities for the purpose of scheduling work
- 3) Alerting everyone to job status issues as needed or requested

A brief status report on most jobs can be found at

http://tdserver1.fnal.gov/AcceleratorSupport/TD-EFD_Joblist.xls

Today's themes:

- 1.) Shutdown preparations
- 2.) FY04 work

New work started or proposed

- New Booster dogleg stands
- Booster extraction C magnet
- Electron Cooling vacuum system (test and tunnel)
- Electron Cooling return line magnetic shielding
- Recycler vacuum
- Recycler magnetic shielding from NuMI
- Prototype second harmonic choke
- Rework LEP correctors
- NuMI kicker technician assistance

BD work during shutdown

- Tevatron dipole reshimming
- Tevatron spool corrector leads upgrades
- Tevatron stand replacement
- Individual technicians

Other status reports

Ceramic beam tubes - potential vendors identified, visits, orders

E907 done except for one thermal study

NuMI nearing completion

AP2/Debuncher aperture status

and clarification of items 223, 224, 225

Linac PA tube study

Possible projects for FY04...

ILA - Main Injector/Tevatron Lambertsons

Main Injector quads

LEP corrector coils

Separator projects (separators, switches)

On-line reference dipole

Booster ORBUMPs

Booster extraction septum magnets

Debuncher stochastic cooling

Booster gradient magnet measurements

CKM magnets

AP2/Debuncher aperture

Tevatron spools

Spare 3Q120M magnets

Choose a regular meeting time

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Given the difficulty in arranging a standing meeting, we did the last agenda item first:
The meeting is scheduled for every other Wednesday, 10AM. We'll look for a bigger
room. So, the **next meeting** is

Wednesday, 3 September 2003 10AM location TBD.

[Note added in proof: meeting will be in ICB2E]

Dave H reviewed the purpose of the meeting, which is to keep BD management informed
of requests which TD has received from various sources in BD, and confirm that the
priorities we have on those projects is consistent w/ those of BD mgmt.

Dave H is the TD contact point; at this meeting Dave McG was confirmed as the BD
contact point. He may designate someone else at some point in the future, but this is the
situation for now.

Onwards...

New Work Started or Proposed

Booster Dogleg Stands – the stands are out for procurement at ANL. TD will install
the spare magnets on the stands. They will be ready for installation in mid-September.

The existing magnets will become the spares, for the time being cooling in the Booster tunnel until the 2nd set of stands is made for L13. Dave McG will check on the timing of this 2nd installation; TD will await the BD ok before proceeding with the 2nd set.

Booster extraction C magnet – Parts for 2 magnets are in procurement, one plus a spare. The needed magnet should be ready to install during the shutdown.

Electron cooling vacuum system (test and tunnel) – There is a major disconnect on the test task, and the principals and management need to talk. BD mgmt understands design help is not needed, but techs are, while TD mgmt has an understanding exactly opposite from this. The principals, Henryk and Sergei, do not agree on where this job needs to go. Dave McG will meet with Sergei and let us know. For the tunnel work, BD wants help designing a new vacuum system for the solenoids, including the magnetic shielding. TD understands the needs to be for more aperture and better vacuum pumping compared to the current system. The bore of the existing solenoids may pose a limit that makes the requirements unachievable. Building larger solenoids would impose a heavy time and cost penalty that BD is unwilling to consider at this time. The ‘best effort’ may be to go with the current system, but prepare for larger solenoids in a future shutdown. Again, Dave M will talk to Sergei to determine the vacuum requirements.

Electron cooling return line magnetic shielding – TD has not started work on this. To do the complete task we need a field map, which requires a power on access. Dave McG would like TD to look at making a 1st pass ‘best guess’ design, as getting this sort of access and doing the field map is quite difficult. Can the shield be overdesigned such that a map isn’t necessary?

Recycler vacuum – TD tech help is ongoing.

Recycler shielding – Doug Jensen (BD) is leading the effort. Vladimir Kashikhin is available for consultation. We do not have a mockup, but have done single magnet fringe fields. Final decision will need a field map, but again the question is how good a map we need or if we can make a design conservative enough that no field map is needed. Dave McG notes this is a big problem, as there is a concern the NuMI dipoles will permanently affect the Recycler quads, so BD doesn’t want to turn the NuMI magnets on until they are shielded. The shielding tasks for the Electron Cooling and Recycler efforts have high priority from BD.

Prototype 2nd Harmonic Choke – This is Proton Driver R&D work for Weiren Chou within the TD budget. BD believes it has low priority, but TD notes there is not a conflict with personnel typically used on BD projects. At a low level it’s OK. BD to clarify priority.

Rework of LEP correctors – This is an important task. The original plan was to replace the coils, but the bids from outside vendors, including the vendor that gave the budgetary estimate, were considerably higher than the budgetary estimate (100-190k\$ vs. 50k\$). As a result, TD is reworking correctors to increase the spares pool. We will have an adequate supply of spares in 2 weeks. In the meantime, TD is planning for more coils to be made next year, either outside or in house. The outside bids may come down in price with a relaxed delivery time. The in house fabrication cost will come down with the acquisition of a new coil winding machine that is in procurement now.

NuMI kicker tech assistance – This is a small budget item but symbolically significant. TD has 1 tech working with BD/MSD to help build this kicker. It’s proceeding. This led to a discussion of kicker work in general, as 2 years ago there was

an agreement that TD would assume the design and manufacture of these from BD (not power supplies). BD/MSD has been very reluctant to do this, and this work is the first time we have been allowed to be involved. BD mgmt will revisit the situation.

Wire compensation – TD was asked for preliminary engineering studies relating to a wire compensation scheme. There is a preliminary design review of the scheme at the end of September. This effort will not progress into detailed design or manufacture at this time.

P3 line vertical corrector -- TD was contacted by Chuck Brown for an additional vertical corrector for this line. TD found a magnet in storage and will check it out and help on the support if needed.

Skew sextupole – Vladimir Shiltsev contacted TD regarding installing the spare Accumulator skew sextupole on a new stand for installation in the Tevatron during the shutdown. TD will do this, but we should revisit the spares situation afterwards. It is not clear whether the two magnets installed in the Accumulator are actually used. BD will revisit the future spares situation.

BD work during shutdown

TD is taking full responsibility for the Tev dipole reshimming and Tev spool corrector leads upgrades. We are coordinating these efforts with Jim Volk, the designated BD Tevatron coordinator.

TD is coordinating its work on stand replacement and other techs through Dave Augustine. Dave A will report closure (or not) on the total technician count to Roger D, who will inform us.

Other status reports

TD/MC has visited a potential vendor regarding ceramic beam tubes. Vesuvius/McDaniel has experience with these types of tubes, and believes slip casting is the only viable means to make the tubes we require (note the conversation centered on the most difficult tube, some others are simpler, even off-the-shelf). The vendor is concerned about making just a few tubes and then having us reject them. They would prefer to make a small lot (6-12 tubes). A major challenge, among others, is the straightness required. In addition, they will send us material for a trial coating. Gregg asked the vendor to send us a proposal to be evaluated as a potential FY04 job.

E907 – TD is completing a ‘no water flow’ cooling study, but otherwise this is complete.

NuMI – TD effort is nearing completion. The thermal studies are the big remaining open item, with the expected operating temperatures too high in the 3Q120s due to very inefficient water cooling. The potential effect on nearby magnets is not good. NuMI is discussing alternative cooling schemes, more water pumps, and ramping power supplies among other things. The trim dipole effort is almost done.

AP2 / Debuncher aperture study – TD effort is complete pending tunnel access time to verify the list of elements in the Debuncher. BD personnel will use the survey in conjunction with optics calculations and beam studies to determine the limiting aperture(s), and get back to TD on what items need to be rebuilt. Dave McG would like to do this sooner rather than later so it doesn’t turn into a crisis.

Linac PA Tube Study -- Nelson Chester and Paul are visiting Brookhaven next week to review Brookhaven's experience and available equipment. Though BD has recently received 2 tubes, the 1st as measured has very different properties from the others, and requires a detuning of the system to operate. TD will wait on further action until after the visit. BD has let an SBIR to look at alternatives. They will forward a copy of the SBIR to Victor Y so he can give the requirements to colleagues in Russia who have multibeam Klystron experience to see whether they can be of help to us. BD/TD will stay in contact on this. We will need to look into all options.

FY04 jobs –

This is also a high priority for discussion, but time had run out. We will focus on FY04 plans at the next meeting.

Next meeting:

Wednesday, 3 September 2003, 10:00 AM, Location ICB2E.